

DETAILED ACTION

1. This action is responsive to the Applicant's response filed as Appeal Brief as of 8/4/08.

As indicated in Applicant's Appeal Brief, no claims have been amended. Claims 1, 3-40, 42-45 are pending in the office action.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Vahid Sharifi, Reg. # 45828 on 11/8/08.

The application has been amended as follows.

A) In the CLAIMS:

Claim 1 (Currently Amended)

A computer implemented method for downloading resources, from a source to ~~an~~ one or more intermediate storage facility(ies) [,] having a finite storage capacity, the computer implemented method comprising the following computer executable acts:

determining a probability of using a resource, the probability in part determined [via;] by:
~~accepting at least one user-based factor; accepting at least one resource-based factor;~~

maximizing an expected value of downloaded resources via a computation that takes input parameters, wherein the input parameters include at least one user-based factor and at least

~~one resource-based factor; via utilization of the at least one user-based factor and the at least one resource-based factor;~~

~~evaluating a cost of accessing resources in a source in a non-downloaded condition; and
comparing said cost with a cost of accessing resources for the at least one of the intermediate
storage facilities in an downloaded condition; and~~

~~distributing ~~downloaded~~ resources downloaded from the source based on the determining
step among a plurality of storage facilities media associated with the intermediate storage
facilities to minimize total request-to-receive time; and
evaluating a cost of accessing resources in an unloaded condition.~~

Claim 2 (Cancelled.)

Claim 3.

The computer implemented method of claim 1 further comprising determining probabilities that a user belongs to various user type classes.

Claim 4.

The computer implemented method of claim 3 wherein the probabilities that a user belongs to various user type classes are determined based on evidence using a Bayesian network.

Claim 5.

The computer implemented method of claim 3 wherein the at least one resource-based factor includes probabilities that users of the various user type classes will use the resource at least once.

Claim 6.

The computer implemented method of claim 1 wherein the at least one resource-based factor includes probabilities that users of various user type classes will use the resource at least once.

Claim 7.

The computer implemented method of claim 3, wherein the at least one resource-based factor is a probability that the resource will be used at least once and is based on a sum, over all user type classes, of a product of :

a probability that the resource is used at least once, given that an application to which the resource belongs is used at least once, by a user of the user type class;

a probability that the application to which the resource belongs is used at least once by a user of the user type class; and

a probability that the user belongs to the user type class.

Claim 8.

The computer implemented method of claim 1 wherein the at least one resource-based factor includes an association of each of the resources to at least one application class.

Claim 9.

The computer implemented method of claim 8 wherein the at least one resource-based factor includes an indication, for each of the resources, of whether the resource is a core component or an optional component of the application class with which it is associated.

Claim 10.

The computer implemented method of claim 1 wherein the act of maximizing an expected value of downloaded resources includes maximizing an expected value density of downloaded resources.

Claim 11.

The computer implemented method of claim 1 wherein the act of maximizing an expected value of downloaded resources includes minimizing an expected cost of not having a needed resource.

Claim 12.

The computer implemented method of claim 11 wherein the expected cost of not having a needed resource is based on one of enhancement rates of the resources and value densities of the resources.

Claim 13.

The computer implemented method of claim 12 wherein the enhancement rate of a resource is based on the size of the resource, a probability of that resource being used at least once, and a cost of later downloading the resource.

Claim 14.

The computer implemented method of claim 12 wherein the value density of a resource is based on the size of the resource and the probability that the resource will be used at least once.

Claim 15 (Currently Amended)

A computer implemented system for downloading resources from a source to a plurality of storage facilities, comprising a computer for executing the following computer executable components:

~~means for storing at least one user-based factor and at least one resource-based factor;~~

means for intelligently downloading a resource to at least one of the plurality of storage facilities based on a probability of use of resources.

means for determining the probability of use of resources by maximizing an expected value of downloaded resources to at least one of the plurality of storage facilities via a computation that takes input parameters, wherein the input parameters include at least one user-based factor and at least one resource-based factor, via utilization of the user-based factor and the resource-based factor;

~~means for intelligently downloading a resource based on [a] the probability of use to intermediate storage facilities;~~

~~means for optimizing distribution over intermediate storage facilities to minimize total request-to-receive times; and~~

means for evaluating a cost to retrieve resources in the source in a non-downloaded condition[.], and for evaluating a cost to retrieve resources from the source to at least one of the storage facilities in a downloaded condition based on the probability of use;

means for comparing the cost to retrieve resources in the non-downloaded condition with cost to retrieve resources in the downloaded condition; and

means for optimizing distribution among the plurality of storage facilities to minimize total request-to-receive times based on the comparing act.

Claim 16 (Currently Amended)

A computer implemented method of downloading a resource from a source to a plurality of storage facilities ~~an intermediate storage facility~~ comprising the following computer executable acts: ~~accepting at least one user-based factor;~~

determining a probability of use for a resource by a user in a user type class; wherein the determining includes: accepting at least one resource-based factor;

maximizing an expected value of downloaded resources to at least one of the plurality of storage facilities ~~via a computation that takes input parameters, wherein the input parameters include at least one user-based factor and at least one resource-based factor, via utilization of the at least one user-based factor and the at least one resource-based factor, and~~

comparing a cost to retrieve resources in the source in a non-downloaded condition with a cost to retrieve resources from the source to at least one of the plurality of storage facilities in a downloaded condition;

changing a storage capacity of at least one of the plurality of storage facilities ~~the intermediate storage facility~~ based on a change of the expected value[.] and the comparing act.

Claim 17 (Currently Amended)

A computer implemented method for installing software components, each having a size, from a source to a plurality of storage facilities ~~an intermediate storage facility~~, the method comprising, the following computer executable acts:

predicting an expected frequency of use for a software component, in part via:

~~accepting at least one user-based factor; accepting at least one component-based factor;~~

and

maximizing an expected value of downloaded resources to at least one of the plurality of storage facilities via a computation that takes input parameters, wherein the input parameters include at least one user-based factor and at least one resource-based factor,

comparing a cost to retrieve resources in the source in a non-downloaded condition with a cost to retrieve resources from the source to at least one of the plurality of storage facilities in a downloaded condition; and

changing a storage capacity of at least one of the plurality of storage facilities and downloading resources among the plurality of storage facilities ~~the intermediate storage facility based on the predicting act, a value and cost associated therewith, and determining a cost of accessing a resource in an unloaded condition.~~

Claim 18.

The computer implemented method of claim 17 wherein the at least one user- based factor includes probabilities that a user is member of various user type classes.

Claim 19.

The computer implemented method of claim 17 wherein the at least one component-based factor includes an association of each of the software components to one of a plurality of application classes.

Claim 20.

The computer implemented method of claim 19 wherein the at least one component-based factor further includes an indication, for each of the software components, of whether the software component is a core component or an optional component of the application class with which it is associated.

Claim 21.

The computer implemented method of claim 20 wherein the at least one component-based factor further includes probabilities that each of the software components will be used at least once by users of various user type classes.

Claim 22 (Currently Amended).

A computer implemented method for distributing resources, each having a size, among at least two storage facilities, the method comprising the following computer executable acts:

~~accepting at least one user-based factor; accepting at least one resource-based factor; accepting at least one storage facility-based factor;~~

~~accepting probabilistic relationships between user-based factors and resource-based factors;~~

determining a probability of using resources by maximizing an expected value of downloaded resources from a source to the at least two storage facilities via a computation that takes input parameters, wherein the input parameters include at least one user-based factor, at least one resource-based factor, and at least one storage facility-based factor;

comparing a cost to retrieve resources in the source in a non-downloaded condition with a cost to retrieve resources from the source to the at least two storage facilities in a downloaded condition;

minimizing total expected request-to-receive request to receive time via utilization of the user-based factor, the resource-based factor, and the storage facility-based factor based on the determining act and comparing act; and

changing a storage space associated with the at least two storage facilities ~~the intermediate storage facility~~, based on the minimizing act,
and distributing the resources among the at least two storage facilities.

Claim 23.

The computer implemented method of claim 22 wherein the at least one user- based factor includes probabilities that a user belongs to various user type classes.

Claim 24.

The computer implemented method of claim 23 further comprising determining the probabilities that a user belongs to various user type classes.

Claim 25.

The computer implemented method of claim 24 wherein the probabilities that a user belongs to various user type classes are determined based on evidence using a Bayesian network.

Claim 26.

The computer implemented method of claim 23 wherein the at least one resource-based factor includes frequencies at which users of the various user type classes will use each of the resources.

Claim 27 (Currently Amended).

The computer implemented method of claim 26 wherein the at least one storage facility-based factor includes an available capacity of each of the at least two storage facilities and a relative request-to-receive latency of each of the at least two storage facilities.

Claim 28 (Currently Amended).

The computer implemented method of claim 27 wherein the total expected latencies is a function of the frequencies at which users of the various user type classes will use each of the resources, and a difference between the relative request-to-receive latencies of the at least two storage facilities.

Claim 29 (Currently Amended)

The computer implemented method of claim 22 wherein the at least one storage facility-based factor includes an available capacity of each of the at least two storage facilities and a relative request-to-receive latency of each of the at least two storage facilities.

Claim 30.

The computer implemented method of claim 22 wherein the total expected latencies to request and receive resources is minimized based on value densities of the resources.

Claim 31.

The computer implemented method of claim 30 wherein the value densities of the resources are based on the frequency of use of the resources and a difference in request to receive latencies between the at least two storage facilities.

Claim 32 (Currently Amended).

A computer implemented method of distributing resources, each having a size, among at least two storage facilities, each of the storage facilities having a finite available capacity, the computer implemented method comprising the following computer executable acts:

a first determining a probability of using a resource distributed among the at least two storage facilities by a composite user; wherein the first determining includes:

a second determining, for each resource, a change in value of storing the resource on a first storage facility versus storing the resource on a second storage facility [;] and

a third determining, for each resource, a change in cost of storing the resource on the first storage facility versus storing the resource on the second storage facility;

a fourth determining, for each resource, a value density in a knapsack approximation procedure based on the change in value and cost ~~via~~ as a result of the first determining act ~~and the second determining act~~;

wherein the fourth determining includes maximizing an expected value of downloaded resources to the at least two plurality of storage facilities via a computation that takes input parameters, wherein the input parameters include at least one user-based factor and at least one resource-based factor,

distributing the resources among the at least two storage facilities based on the fourth determining act, and
~~maximizing a total value density given a total size of resources being less than the finite available capacity of the first storage facility.~~

Claim 33.

The computer implemented method of claim 32 wherein the value of storing a resource on the first storage facility is a function of a perceived utility of such storage, per request for the resource, and a frequency of requests for the resource.

Claim 34.

The computer implemented method of claim 33 wherein the perceived utility of such storage, per request for the resource, is a function of a request-to-receive time delay.

Claim 35.

The computer implemented method of claim 34 wherein the request-to-receive time delay is a function of at least one of: a storage device read access time, a network speed, a network latency, and the size of the resource.

Claim 36.

The computer implemented method of claim 35 wherein the network speed is a function of a user configuration.

Claim 37.

The computer implemented method of claim 33 wherein the frequency of requests for the resource is a function of a user type class and a number of users belonging to the user type class.

Claim 38.

The computer implemented method of claim 32 wherein the cost of storing a resource on the first storage facility is a function of the resource size.

Claim 39 (Cancelled)

Claim 40 (Currently Amended).

A computer implemented method of downloading a resource(s) from a source to a plurality of storage facilities ~~an intermediate storage facility~~ comprising the following computer executable acts: ~~accepting at least one user-based factor; accepting at least one resource-based factor; accepting at least one storage-facility-based factor;~~
~~accepting probabilistic relationships between the at least one user-based factor and the at least one resource-based factor;~~
minimizing total expected latencies to request and receive resources, by:

determining a probability of using resources by maximizing an expected value of downloaded resources from the source to at least one of the storage facilities via a computation that takes input parameters, wherein the input parameters include at least one user-based factor, at least one resource-based factor, and at least one storage facility-based factor;

and determining a cost of [retuning] ~~returning to~~ resources to the source in an ~~unloaded~~ a non-downloaded condition, and comparing said cost with cost of accessing resources from the source to at least one of the storage facilities in an downloaded condition; and

distributing resources among the plurality of storage facilities based on the probability of use and the comparing act.

Claim 41 (Cancelled.)

Claim 42 (Currently Amended).

The computer implemented method of claim 40 further comprising changing a storage capacity ~~of the storage medium~~ associated with the plurality of storage facilities based on at least one of a change in value and cost.

Claim 43.

The computer implemented method of claim 42 further comprising changing the storage capacity when a ratio of value to cost is greater than one.

Claim 44 (Currently Amended)

The computer implemented method of claim 43 wherein the at least one user-based factor is a function of a time offline until the one of the plurality of storage facilities ~~intermediate storage facility~~ is reconnected with a source.

Claim 45.

The computer implemented method of claim 44 wherein the time offline is a probability distribution considering at least one of: a resource context, a user type class, and a recent usage pattern.

B) in the **SPECIFICATIONS**:

Amend as follows:

Page 82, § 4.2.4.4, lines 25-26:

“... given a situation (See e.g., U.S. Patent Application Serial No. 09/596,365, now issued as U.S. Patent No: 7,249,159, entitled “Notification Platform Architecture,”, ...”

Page 83, lines 1-2:

“... Serial No. 09/596,364, now issued as U.S. Patent No: 6,601,012, entitled “Contextual Models and Methods for Inferring Attention and Location”, ...”

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

4. Claims 1, 3-38, 40, 42-45 are allowed.

The following is an examiner's statement of reasons for allowance.

The prior art taken separately or jointly does not suggest or teach the following features.

A method to manage distribution or download of resources from a source to a plurality of storage facilities or intermediate storage facilities, comprising (i) determining a probability of using a resource by maximizing a expected value of downloaded resources via a computation that takes a user-based parameter, and a resource-based parameter; (ii) comparing a evaluated cost of accessing resources in the source in a non-downloaded condition and a evaluated cost of accessing resources in the source for the plurality of storage facilities in a downloaded condition; (iii) based on the determining and comparing, minimize the request-to-receive time (or request-

receive latency) or distributing the resources among the plurality of storage facilities (or intermediate storage facilities) as recited in claims 1, 15, 32, 40; OR

based on the determining and comparing, changing storage capacity of the plurality of storage facilities as recited in claims 16, 17, and 22.

Robinson, USPN: 5,918,014 discloses tracking user's choices based on demographic profile to distribute ads to user's browser, hence is remotely commensurate with the distribution of resources prior to downloading any to user's computers as taught in the maximizing of an **expected value** in (i) and comparing of cost for returning non-downloaded resources to a source from a intermediate storage facility as in (ii) including adjusting storage of capacity thereof as in (iii).

Drewry, USPN: 5,925,100, discloses interactive interface including runtime prefetching primitives in a user or developer's environment with cache managing therein, wherein dependency data is analyzed to support the prefetching and caching of web pages or data as these are downloaded per request; however, Drewry does not teach or suggest maximizing - determining for a expected value - as in (i) and (iii) to change capacity of storage prior to distribution to users; nor does the prefetching includes comparing of cost as in (ii), prior to any actual distributing of resources.

Cherkasova et al, USPN: 6,425,057, discloses dynamics of caching and replacing cached objects based on indicator and frequency of usage; but this cache management scheme based on parameters for evaluating usage amounts to resizing and reclaiming storage for cached data, which is not a pre-distributing framework by which a determining for a expected value is

first calculated, and a evaluation based on comparing a non-downloaded condition against a downloaded condition would support a request-to-receive latency as set forth in (i) and (ii).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (571) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571)272-3759.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-272-3609.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tuan A Vu/

Primary Examiner, Art Unit 2193

November 09, 2008